California Energy Resources and Development Commission

May 17, 2005

Imperial Valley Fuels, LLC

(Founders William R. Batley and Claude M. Finnell)

Southern California Sugarcane Growers Association

(100+ Growers)

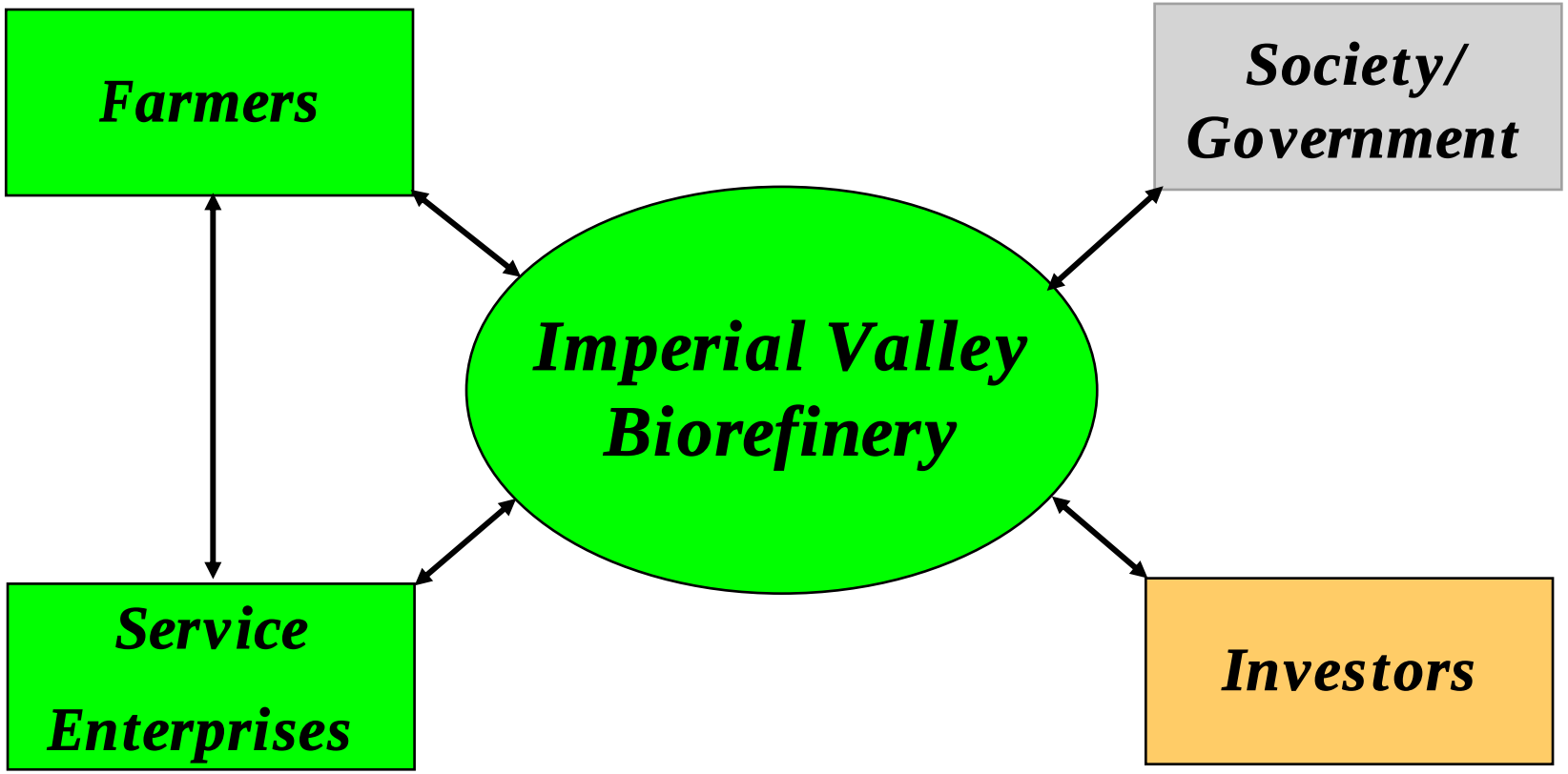
Ethanol Impact on Petroleum Use Reduction

- Ethanol can play a major role in achieving reductions in petroleum use
- Biomass-to-ethanol approach will be more important than corn-to-ethanol
  - More NET energy per gallon (60,000 vs. 20,000 BTU)
  - Higher whole plant land productivity (19 dry tons vs. 7 dry tons)
  - Lower cost per gallon -- $1.00 / gallon vs. $1.20 / gallon
  - Volume potential, matching Midwest corn (4 + Billion gallons per year
  - Diversity of feedstock supply accommodated
    - Cane crop
    - Agriculture field and processing wastes
    - Forest and forest product wastes
    - Municipal waste (with law change)
- Imperial Valley has resources, groups cooperating to finance and construct commercial biorefinery
- Substantial economic development, job creation and tax revenue benefits will be created

Ethanol Manufacture from Sugar Cane

- Progress of Imperial Valley ethanol project has accelerated
- Developments in Imperial Valley could set example for Central Valley, other areas

Project Stakeholder Groups



Stakeholder Satisfaction

- **Investors**
  - Rates of return matching financial risks
  - Large investments, lower transaction costs
  - Availability of facility management services
  - Public benefit element in projects
  - Defined exit strategy

- **Farmers**
  - Revenue per acre
  - Retain land value

Stakeholder Satisfaction

- **Society/Government**
  - Improved air, water quality
  - More value for water consumed—same consumption as alfalfa, greater product value
  - Increased employment, economic development
  - Repatriation of jobs lost to foreign refiners, less ethanol imported from Midwest
  - Increased use of local, renewable resources
  - Lower air pollution (PM 10) by burning biomass wastes for fuel

Ethanol Manufacture from Sugar Cane

- Success – Billet yields of 62+ tons / acre (18.6+ dry tons / acre)
- Yields predicted to be 25-30 dry tons / acre in 5 years

Batley Farms New Cane Field

Batley Farms Mature Cane Field

Batley Farms Mature Cane Field

Ethanol Manufacture from Sugar Cane

- SWAN process improves revenue / acre
  - Sucrose → Ethanol
  - Fiber → Sugar → Ethanol
  - Yield per dry ton of raised to 106 gallons
  - Reduces need for costly “water processing”

Imperial Valley Stakeholder Profitability

- Grower profit of $500-$1,000 per acre possible
- Investor profit 25-30 percent DCF-ROI

- Return sufficient to attract growers, investors to first-of-a-kind facility
- Expected startup in 2 years, reach 100 million gallons per year in 5 years
- Value added products introduced by year 5

Imperial Valley Fuels Biorefinery Profile

- 1,007 dry tons biomass consumed per day (358,500 dry tons per year) to produce 40 million gallons per year
- 13,000 acres can supply the facility at 60 million gallons per year
- 21,000 acres required for 100 million gallon per year facility

California Potential -- Imperial Valley

- **Industry potential**
  - 375,000 Imperial Valley Acres have incentive to switch to cane production
  - 1.5 Billion gallons per year fuel ethanol could be produced in 15 expanded IVF-type facilities if all these acres were committed to ethanol production
- **Economic development**
  - $3 Billion investment
  - 12,400 new jobs
  - $4 Billion per year economic activity
  - Water consumption stable or reduced
- **IVF Biorefinery at 100 million gallons per year would displace 65-120 million gallons per year gasoline**

Vision for New Transportation Fuel Market